Micro-costing vs FLUTool; Cost Analysis of Influenza Vaccination for Pregnant Women in Thailand

Arthorn Riewpaiboon

INTRO

FLUTool has been developed to estimate the costs of influenza vaccination strategies for pregnant women. Then, micro-costing, a gold standard method was conducted to validate the tool. This study aimed to estimate the service delivery cost per pregnant woman vaccinated against influenza using micro-costing method comparing to the FLUTool.

METHODS

Economic costs of influenza vaccination at 8 district hospitals from different regions of Thailand were estimated based on the perspective of the hospital. The micro-costing approach was applied covering labor, material and transportation costs. Costs of using refrigerator, cold box, vaccine and related materials including supply chain from central procurement to district hospital were not included. The vaccination program was defined as a set of activities including planning and training, vaccine preparation, transportation to vaccination sites, screening, vaccine delivery, AEFI surveillance and reporting. The study was based on services in 2016. Costs were calculated in Thai baht and then converted to International dollar (Int$1=12.46 Thai Baht in 2016).

RESULTS

Cost per dose of vaccination classified by activities

Activity	Total cost/ dose (THB in 2016 prices)							
	Hosp. 1	Hosp. 2	Hosp. 3	Hosp. 4	Hosp. 5	Hosp. 6	Hosp. 7	Hosp. 8
1. Planning and training	4.86	1.64	3.51	14.57	7.11	1.17	14.70	7.31
2. Exploring target group	0.69	0.23	0.52	5.88	1.10	0.14	0.33	0.30
3. Vaccine delivery								
3.1 Vaccine preparation	0.86	2.30	0.52	5.49	2.44	0.09	0.11	0.05
3.2 Travelling to service site	42.56	78.77	11.63	137.27	299.89	-	-	-
3.3 A Screening and vaccinating A	59.74	110.48	183.08	61.41	94.96	22.67	105.19	56.35
3.3 B Screening and vaccinating B	22.05	31.68	91.54	39.48	38.24	-	-	-
4. Recording/ reporting	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01
Total cost of vaccine delivery	65.48	112.76	103.71	182.25	340.58	0.10	0.13	0.05
Total cost of all activities	71.03	114.63	107.73	202.70	348.80	24.08	120.35	64.01

Note:

1. Screening and vaccinating A includes labor cost of both district hospital and Tambon health promoting hospital staff. Screening and vaccinating B includes only labor cost of Tambon health promoting hospital.
2. Total cost of vaccine delivery includes cost of activity 3.1, 3.2,3.3 B and 4. This because labor cost of hospital staff (in activity 3.3 A Screening and vaccinating A) for vaccinating is already included in 3.2 Travelling to service site.

1. Total cost includes cost of activity 1, 2, 3.1, 3.2,3.3 B and 4. This because labor cost of hospital staff (in activity 3.3 A Screening and vaccinating A) for vaccinating is already included in 3.2 Travelling to service site.

Mahidol University Social and Administrative Pharmacy

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HEA

Total cost per vaccinated dose was in range of Int$10.8-31.4.

The FLUTool version 3 does not cover mobile delivery service. This might be an input to develop the next version.

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DISCUSSION

The strength of this study was a study design as a micro-costing study that is relatively high accurate and appropriate for estimating cost of campaign-style influenza vaccination approaches in Thailand. However, the data were retrospectively collected from interviews of events that occurred for a year or more. While recall bias may be a limitation we are unsure if this would or under-estimate their involvement in the vaccination campaigns.

When comparing the manual micro-costing approach in this study to the WHO FLUTool, the costing template tool (FLUTool v.3.0) does not cover mobile delivery service. This might be an input to develop the tool.

Vaccine delivery activities should include planning together with training, inventory management, vaccinating including travelling time for mobile service, and reporting. The FLUTool should be modified to include the complete cost of mobile service.